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Kathryn Tosney awarded 2015 Viktor Hamburger Outstanding Educator Prize

Tosney (left) receiving Hamburger Prize from Diana Darnell, SDB Professional Development and Education Committee Chair at SDB 74th Annual Meeting in Snowbird, Utah.

The 2015 Society for Developmental Biology Viktor Hamburger Outstanding Educator Prize was presented to Kathryn Tosney of the University of Miami for her outstanding contributions to developmental biology education. Tosney, best known for her generously donated scanning electron micrographs of chick neurulation which have been published in hundreds of biology textbooks and reviews, is a pioneer of experiential learning. She created *The Origami Embryo*, an active-learning exercise about morphogenesis and designed *aCross Development*, a crossword puzzle study guide to accompany Scott Gilbert's Developmental Biology textbook. As a member of the SDB Professional Development and Education Committee, Tosney worked tirelessly for inclusion, progressive ideas, and quality in education sessions. She served on the SDB Board of Directors as both Midwest Representative (1996–1999) and Treasurer (1999–2002).

In an interview last Spring, Tosney expressed her appreciation for being awarded the Hamburger Prize.

"It is such [an] honor because it construes educational excellence in the broadest sense that happily coincides with my passion for teaching both science and professional skills."

"I am truly gratified that the dual principles of educational excellence and community support are rewarded by my professional society."

Tosney's developmental biology journey began while an undergraduate at the University of Oregon where she encountered neural crest biologist, James Weston. "I actually took his graduate course on neural crest and fell in love with it," Tosney said.

"At the time I wanted to be a molecular biologist with Frank Stahl [of the Meselson–Stahl experiment]," she said. "Then, unfortunately, I walked into Jim Weston's lab and I saw the embryo."

It was the beauty of the embryo that had Tosney hooked. And thanks to Weston, she acquired a passion for neural crest which she carried with her to graduate school in 1975.

Tosney chose to attend Stanford University in order to work with Norman Wessells, chair of the biology department and owner of a much-envied, top-of-the-line scanning electron microscope. This technology was key to Tosney's work examining neural crest cell behavior and migration in the chick embryo. "Sometimes just looking is the most important thing you can do," she said.

Many of Tosney's famous images of the neural crest, neural tube, and somites were generated while in graduate school, first appearing in Wessells' own textbook *Tissue Interactions and Development* in 1977.

In 1980, Tosney joined Lynn Landmesser's lab at Yale University as a postdoc to study axon pathfinding in the chick embryo. Tosney described this period as a "joyful time of true intellectual exchange." She valued the collaborative relationship she shared with Landmesser so much so that when she started her own lab at the University of Michigan in 1984, she sought to engage her students in a similar way.

At Michigan, Tosney continued her work on axon guidance cues in the vertebrate embryo while dabbling in side projects on the neural crest. Within five years she was tenured, something five of her friends at other institutions had failed to achieve.

"That experience made me look harder at the tenure process," Tosney said. "And I now give this talk across the nation called *Survival in Academia*."

Fortunately, her friends remained in science and have since gone on to have long careers.

Tosney stressed the importance of having mentors at all stages of your career. Kate Barald, a colleague at the University of Michigan, was a huge influence on her scientific career. Barald was a postdoc at Stanford when Tosney was a student. She provided Tosney guidance and support throughout each of her career transitions.

Tosney's desire to help others led her to conduct professional development workshops on life in academia, implicit bias, scientific writing, and creating effective posters. "It is always gratifying to bring people skills and strategies that can help them succeed," she said.

After twenty years at Michigan, Tosney headed south to the University of Miami to become Chair of the Department of Biology. When she arrived, she noticed there were still some science

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departments that had few or no women faculty.

In response to this she initiated the Scientists and Engineers Expanding Diversity and Success (SEEDS) career development program that was initially funded by a National Science Foundation ADVANCE grant for Women in Science. The successful program is now institutionalized in the academic affairs office of the University of Miami to foster career success in all departments throughout the campus.

In order to build a successful program, Tosney said you have to "build the groundwork and the leadership as you go so the program will continue to thrive after you leave."

When asked to reflect on her career, Tosney said, "the most rewarding part has been the diversity. I was able to follow my passion and periodically reinvent myself in significant ways. In the last 5 years, I have reinvented myself to study the behavioral ecology of marine iguanas."

Tosney had always been interested in reptiles and lizards, so she developed a study abroad program with Intercultural Outreach Initiative.

"This work has resulted in my leading a successful conservation program in the Galapagos that preserves the only viable population of baby marine iguanas in Southeast Isla Isabela."

Tosney recently stepped down as Chair of her department, but she has no plans to retire.

"I have marine iguanas to look at," she said.

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